

Original Article

Comparison of knowledge, attitude, and practice of physicians and pharmacists about migraine management

Noor Us Saba *, Rimsha Akhtar, Hifsa Mubashar

Faculty of Pharmaceutical and Allied Health Sciences, Lahore College for Women University, Lahore, Pakistan

* Correspondence: noorussabaa228@gmail.com; Telephone: +923134760314



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Abstract

Migraine is a complicated genetically influenced disorder characterized by episodes of moderate-to-severe headache. It has a prevalence rate of 10% per year worldwide and accounts for 7% of all neurological disorders worldwide. This prevalence is 6% among males and 18% among females. Despite the high prevalence of the illness, it is misdiagnosed and mistreated by healthcare professionals. Therefore, this study aimed to compare physicians' and pharmacists' knowledge, attitudes, and practices regarding migraine management. This descriptive cross-sectional study was performed in major public healthcare facilities and well-established community pharmacy chains in Lahore. A purposive sampling technique was used to recruit participants. Data were collected using a self-administered questionnaire and analyzed by calculating descriptive statistics and a chi-square test. The results showed that 61.67% of physicians were males and 60.00% of pharmacists were females with five years or less of working experience. Most healthcare professionals were well aware of the episode duration, definition of chronic migraine, and its types (physicians = 70.00%, 72.78%, 78.33%; pharmacists = 75.71%, 67.14%, 71.43%, respectively) and provided patients with information regarding migraine triggers, drugs causing migraine, side effects of drugs, and guidance to prevent side effects. Moreover, most healthcare providers considered prevention and acute treatments as a part of a broader approach to managing chronic migraine and considered prescribing preventive medicines at lower doses to minimize potential side effects. The knowledge of physicians and pharmacists was significantly different regarding migraine-associated symptoms, preference for nonpharmacological interventions to alleviate symptoms of chronic migraine, and consideration of prevention and acute treatments as part of the broader approaches to managing chronic migraine ($p < 0.05$). The study concluded that the physicians' and pharmacists' knowledge, attitudes, and practices were good. However, healthcare professionals' knowledge significantly differs regarding migraine-associated symptoms, preference for nonpharmacological interventions to alleviate symptoms of chronic migraine, and consideration of prevention and acute treatments as part of the broader approaches to managing chronic migraine.

Keywords

Migraine; Chronic illnesses; Neurological disorders; Pharmacy practices; Community pharmacy; Patient counseling

1. Introduction

Migraine is a complex genetically influenced disorder characterized by episodes of moderate-to-severe headache, typically unilateral, accompanied by nausea and high sensitivity to light and sound. A migraine episode is a complex brain event lasting from hours to days and frequently occurs [1, 2]. Therefore, the diagnosis and treatment of migraine often depend on the related symptoms and duration of pain. Moreover, healthcare professionals such as physicians and pharmacists' experience and expertise also determine

whether the course of treatment should be pharmacological or nonpharmacological. Generally, nonsteroidal anti-inflammatory drugs (NSAIDs), including ergotamine and topiramate, are the most commonly prescribed drugs for the treatment of migraine [3, 4].

Although migraine has different types, two are most often reported, including migraine with and without aura [5]. Nearly 75% of migraine cases diagnosed without aura are characterized by recurrent headache attacks lasting from 4 to 72 hours, typically unilateral, pulsating, moderate to severe in intensity, worsened by physical activity, and accompanied by nausea as well as light and sound sensitivity (photophobia and phonophobia) [6, 7]. On the other hand, migraine with aura is characterized by recurring but reversible attacks lasting from minutes to hours with visual, sensory, retinal, and motor symptoms followed by headache and migraine symptoms. Headache may occur for 15 or more days per month for over three months. However, persistent migraine symptoms for at least eight or more days per month can be termed chronic migraine [8].

Migraine is a neurovascular disorder affecting over 1 billion people worldwide, making it the third most prevalent chronic neurological illness and the seventh largest cause of disability [9]. Its prevalence rate is 10%, accounting for 7% of all neurological disorders globally, affecting 6% of males and 18% of females, and this ratio changes with age among both genders. In addition, women become more vulnerable to migraine during their reproductive years [10]. Furthermore, among people with migraine, 1% to 5% experience chronic migraine. The disease is also a cause of 618.4 years of healthy life lost owing to disability (YLDs) per 100,000 population, indicating a broader impact of migraine [11].

Considering the higher incidence and prevalence of the disease, the severity of the signs and symptoms, and the suffering of patients, migraine is treated by multiple healthcare professionals [12]. Unfortunately, it is often misdiagnosed and managed poorly in clinical settings. Therefore, the experience, clinical skills, and knowledge of healthcare professionals about the disease are of pivotal importance for any disease diagnosis and differential diagnosis. In addition, symptoms of migraine are usually perplexing, with different types of headaches making it difficult for most healthcare professionals to diagnose them accurately. Therefore, good knowledge of migraine epidemiology, diagnosis, and treatment is a prerequisite for treating such patients [13].

A United States (US)-based study identified significant gaps in the knowledge and understanding of migraine among practicing physicians [14]. Similarly, nearly two-thirds of migraine patients in the United Kingdom (UK) are misdiagnosed because of limited knowledge of the disease among physicians [15]. In Turkey, only 10.5% of physicians have sufficient knowledge to establish a proper migraine diagnosis [16].

According to the World Bank, there are 1.1 physicians per 1,000 population in Pakistan [17, 18]. In addition, most of the healthcare workforce prefers to work in metropolitan areas. Therefore, many patients residing in villages or towns are left with fewer choices. They ultimately visit various formal and informal healthcare professionals, such as pir, hakim, homeopathic doctors, and pharmacists, for their medical conditions. Considering the unequal distribution of health services in communities, the role of other healthcare professionals, such as pharmacists, who can potentially manage chronic diseases such as migraines through pharmaceutical care, cannot be overlooked [19].

It is evident from the literature that pharmacists possess sufficient knowledge and skills to contribute efficiently to disease management [20]. However, despite the availability of scientific evidence suggesting the importance of pharmacists' roles in the management of many diseases, little is known in the local context. In the meantime, the knowledge assessment of physicians and other healthcare professionals is also crucial.

Therefore, this study aimed to compare physicians' and pharmacists' knowledge, attitudes, and practices regarding migraine management.

2. Materials and methods

2.1. Study design

This descriptive cross-sectional study was conducted for three months, from January 2022 to March 2022.

2.2. Ethical approval

The study was approved by the Research Committee of the Faculty of Pharmaceutical and Allied Health Sciences, Lahore College for Women University, Lahore, Pakistan (No. RC/PAHS/1098).

2.3. Study setting

This study was conducted in three public tertiary care hospitals, i.e., Shaikh Zayed Hospital, Jinnah Hospital, and Services Institute of Medical Sciences, Lahore, with the busiest outdoor patient departments unit with a rapid turnover, and seven well-established private pharmacy chains spread all over Lahore with a significant number of operational branches with the availability of pharmacists for patient counseling.

2.4. Participant recruitment

The study recruited physicians with a minimum bachelor's degree in medicine and surgery, holding valid practicing licenses from the Pakistan Medical Commission, and working as medical officers. The study also recruited pharmacists with minimum qualifications as Doctor of Pharmacy, holding a valid Provincial Pharmacy Council license and working as a pharmacist. However, healthcare professionals holding foreign bachelor's qualifications, fresh graduates with less than six months of working experience, and pharmacists not dealing with the general public at the pharmacy were excluded from the study.

2.5. Sampling size and sample technique

This study employed purposive sampling, which was appropriate because the sample units were chosen based on personal judgment and convenience and met the inclusion and exclusion criteria. Therefore, the probability of any particular healthcare professional being chosen was unknown [21].

2.6. Questionnaire development

This study used a reliable and validated questionnaire after slight modifications before final use based on the results of pilot testing of the study instrument [22]. The questionnaire consisted of four parts, including demographic information, knowledge, attitude, and practices of healthcare professionals.

2.7. Data collection

The survey was self-administered, and healthcare professionals were provided with the questionnaires with a consent form. The principal and coprincipal investigators received all questionnaires, and unsigned questionnaires and questionnaires with missing consent forms were discarded.

2.8. Study measures

The study questionnaire obtained demographic information, including age (20 – 30 years, 31 – 40 years, 41 – 50 years, 51 – 60 years, and above 60 years), gender (male, female), and work experience (in years). In addition, healthcare professionals were asked to describe the number of migraine patients who visited last month. Other sections, including knowledge, had six questions, while attitudes and practices had eight questions. Finally, the responses in the latter three sections were recorded in three options (yes, no, maybe).

2.9. Statistical analysis

The data were analyzed using Statistical Package for Social Sciences [version 25.00 (IBM Corp., Armonk, NY, USA)] to calculate frequencies and percentages. In addition, the chi-square test was used to compare the physicians' and pharmacists' knowledge, attitudes, and practices regarding migraine management. The significance level (p value) was taken as < 0.05 .

3. Results

Table 1 shows that most physicians (61.67%) were male compared to their female counterparts (38.33%). On the other hand, more pharmacists were female (60%) than male pharmacists (40%). The number of migraine patients visiting healthcare professionals was meager, as 56.67% of physicians and 72.85% of pharmacists attended fewer than five patients per month. In addition, most of the selected sample of physicians (74.44%) and pharmacists (65.71%) had five years or less of working experience.

Table 1. Sociodemographic characteristics of healthcare professionals (n = 250).

Sociodemographic Characteristics		Physicians n = 180	Pharmacists n = 70
		N (%)	N (%)
Gender	Male	111 (61.67)	28 (40.00)
	Female	69 (38.33)	42 (60.00)
Age (in years)	20 – 30	133 (73.89)	42 (60.00)
	31 – 40	34 (18.89)	22 (31.43)
	41 – 50	10 (5.56)	5 (7.14)
	51 – 60	2 (1.11)	1 (1.43)
	Above 60	1 (0.56)	0 (0.00)
Patients visited during last month	< 5	102 (56.67)	51 (72.85)
	6 – 10	55 (30.56)	13 (18.57)
	> 10	23 (12.78)	6 (8.57)
Work experience (in years)	< 5	134 (74.44)	46 (65.71)
	6 – 10	26 (14.44)	16 (22.85)
	> 10	20 (11.11)	8 (11.43)

Table 2 shows that most healthcare professionals were well aware of the episode duration and definition of chronic migraine types (physicians = 70.00%, 72.78%, 78.33%; pharmacists = 75.71%, 67.14%, 71.43%, respectively). In addition, most healthcare professionals knew the importance of medical history, migraine-associated symptoms, lifestyle modifications, and trigger management as a broader treatment approach (physicians = 95.00%, 91.11%, 92.78%; pharmacists = 94.29%, 88.57%, 87.14%, respectively).

Furthermore, the overall knowledge of healthcare professionals differed significantly regarding migraine-associated symptoms ($p = 0.016$).

Table 2. Knowledge of healthcare professionals regarding migraine management (n = 250).

Variables	Physicians n = 180			Pharmacists n = 70			p value **
	Yes	No	Maybe	Yes	No	Maybe	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Headache episode duration	126 (70.00)	20 (11.11)	34 (18.89)	53 (75.71)	5 (7.14)	12 (17.14)	0.575
Definition of chronic migraine	131 (72.78)	16 (8.89)	33 (18.33)	47 (67.14)	6 (8.57)	17 (24.29)	0.570
Types of migraine	141 (78.33)	12 (6.67)	27 (15.00)	50 (71.43)	3 (4.29)	17 (24.29)	0.196
Importance of medical history for migraine diagnosis	171 (95.00)	3 (1.67)	6 (3.33)	66 (94.29)	1 (1.43)	3 (4.29)	0.929
Migraine associated symptoms	164 (91.11)	9 (5.00)	7 (3.89)	62 (88.57)	0 (0.00)	8 (11.43)	0.016 **
Lifestyle/trigger management as a treatment approach	167 (92.78)	5 (2.78)	8 (4.44)	61 (87.14)	2 (2.86)	7 (10.00)	0.250

* Variables are compared using the Chi-square test. ** Significant at $p < 0.05$.

Table 3 shows that nearly half of the physicians (55.56%) and pharmacists (52.86%) asked patients whether they kept headache journals as a source of migraine information. In addition, most healthcare professionals provided information to patients regarding migraine triggers, drugs causing migraine, side effects of drugs, and handling or preventing side effects of treatment (physicians = 85.00%, 81.11%, 81.67%, 79.44%; pharmacists 74.29%, 70.00%, 84.29%, 71.43%, respectively). Furthermore, physicians and pharmacists differed significantly in suggesting nonpharmacological interventions for chronic migraine management ($p = 0.020$).

Table 3. Attitudes of healthcare professionals regarding migraine management (n = 250).

Variables	Physicians n = 180			Pharmacists n = 70			p value **
	Yes	No	Maybe	Yes	No	Maybe	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Advise keeping a headache journal	100 (55.56)	36 (20.00)	44 (24.44)	37 (52.86)	13 (18.57)	20 (28.57)	0.797
Guide patients about migraine triggers	153 (85.00)	15 (8.33)	12 (6.67)	52 (74.29)	11 (15.71)	7 (10.00)	0.130
Confirm drug status taken by patients causing migraine	146 (81.11)	16 (8.89)	18 (10.00)	49 (70.00)	11 (15.71)	10 (14.29)	0.150
Prefer nonpharmacological interventions	89 (49.44)	50 (27.78)	41 (22.78)	47 (67.14)	9 (12.86)	14 (20.00)	0.020 **
Guide patients about the side effects of medicines	147 (81.67)	22 (12.22)	11 (6.11)	59 (84.29)	4 (5.71)	7 (10.00)	0.207
Guide patients to handle/prevent treatment side effects	143 (79.44)	20 (11.11)	17 (9.44)	50 (71.43)	7 (10.00)	13 (18.57)	0.137
Do you think that migraine affects patients' daily life?	159 (88.33)	7 (3.89)	14 (7.78)	58 (82.86)	5 (7.14)	7 (10.00)	0.453
Satisfied with your practice managing migraine	127 (70.56)	22 (12.22)	31 (17.22)	44 (62.86)	8 (11.43)	18 (25.71)	0.314

* Variables are compared using the Chi-square test. ** Significant at $p < 0.05$.

Table 4 shows that most healthcare providers considered prevention and acute treatments as a part of a broader approach to managing chronic migraine and considered prescribing preventive medicines at lower doses to minimize potential side effects (physicians = 83.33%, 73.89%; pharmacists = 71.43%, 72.86%, respectively). Nearly half of the healthcare professionals considered using vitamin B2 and magnesium supplements, antidepressants, muscle relaxants, and NSAIDs to manage chronic migraine (physicians = 48.89%, 58.89%, 56.67%, 52.22%; pharmacists = 50.00%, 58.57%, 51.43%, 52.86%, respectively). In addition, almost half of the healthcare providers (55.00% physicians and 54.29% pharmacists) considered triptans safe and efficacious for managing chronic migraine. Furthermore, physicians and pharmacists differ significantly in considering pre-

vention and acute treatments as broader approaches to managing chronic migraine ($p = 0.028$).

Table 4. Practices of healthcare professionals regarding migraine management (n = 250).

Variables ***	Physicians n = 180			Pharmacists n = 70			p value **
	Yes	No	Maybe	Yes	No	Maybe	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Prevention and acute treatments	150 (83.33)	17 (9.44)	13 (7.22)	50 (71.43)	7 (10.00)	13 (18.57)	0.028 **
Prescribe preventive medicines at a low dose	133 (73.89)	19 (10.56)	28 (15.56)	51 (72.86)	7 (10.00)	12 (17.14)	0.950
Vitamin B2 and magnesium supplements	88 (48.89)	30 (16.67)	62 (34.44)	35 (50.00)	5 (7.14)	30 (42.86)	0.120
Prophylactic medications	117 (65.00)	17 (9.44)	46 (25.56)	44 (62.86)	5 (7.14)	21 (30.00)	0.701
Antidepressants	106 (58.89)	28 (15.56)	46 (25.56)	41 (58.57)	9 (12.86)	20 (28.57)	0.810
Muscle relaxants	102 (56.67)	40 (22.22)	38 (21.11)	36 (51.43)	18 (25.71)	16 (22.86)	0.746
NSAIDs or paracetamol	94 (52.22)	58 (32.22)	28 (15.56)	37 (52.86)	16 (22.86)	17 (24.29)	0.163
Triptans	99 (55.00)	23 (12.78)	58 (32.22)	38 (54.29)	5 (7.14)	27 (38.57)	0.362

* Variables are compared using the Chi-square test. ** Significant at $p < 0.05$. *** The following variables are assessed by asking healthcare practitioners if they practice them: Prevention and acute treatments: Do you utilize broad approaches to managing chronic migraine that encompass prevention and acute treatments? Prescribe preventive medicines at a low dose: Do you prescribe preventive medicines at a low dose to minimize potential side effects when managing chronic migraine? Vitamin B2 and magnesium supplements: Do you recommend the use of vitamin B2 and magnesium supplements to manage chronic migraine? Prophylactic medications: Do you prescribe prophylactic medications such as topiramate, gabapentin, tizanidine, fluoxetine, amitriptyline, and valproate to prevent chronic migraine? Antidepressants: Do you prescribe antidepressant medications to manage chronic migraine? Muscle relaxants: Do you prescribe muscle relaxant medications to manage chronic migraine? NSAIDs or paracetamol: Do you consider NSAIDs or paracetamol alone as sufficient for managing some cases of acute migraine? Triptans: Do you prescribe triptans as a safe and effective medication for treating migraine attacks?

4. Discussion

Our study results showed that most of the recruited sample comprised male physicians and female pharmacists, among which most healthcare professionals had a working experience of five years or less. Most healthcare professionals had good knowledge of the headache episode duration, the definition of chronic migraine, the types of migraine, the importance of accurate medical history for diagnosis, migraine-associated symptoms, and lifestyle modifications and trigger management as a broader treatment approach. Nearly half of the healthcare professionals asked patients whether they keep headache journals as a source of migraine information. Moreover, most healthcare professionals provide information to patients regarding migraine triggers, drugs causing migraine, side effects of drugs, and how to handle or prevent side effects of treatment. Furthermore, most healthcare professionals considered prevention and acute treatments as a part of a broader approach to managing chronic migraine and considered prescribing preventive medicines at lower doses to minimize potential side effects. The knowledge of physicians and pharmacists was significantly different regarding migraine-associated symptoms, preference for nonpharmacological interventions to alleviate symptoms of chronic migraine, and consideration of prevention and acute treatments as part of the broader approaches to managing chronic migraine.

The results of our study are supported by an Iraqi study that assessed migraine management in community pharmacies by recruiting 126 practicing pharmacists. The study reported that most pharmacists had better knowledge about migraine; they prescribed safe over-the-counter medicine (OTC) to the patients depending upon their condition, counseled the patients in detail, and knew when to refer a patient to a physician [20]. Moreover, a study conducted among Thai pharmacy personnel to assess migraine management in community pharmacies revealed that pharmacists had better knowledge

about migraine; they tended to ask more questions and provide better advice to patients, but their dispensing practices were inappropriate for migraine [23]. Similarly, a Canadian study highlighted that the mean score of practicing pharmacists regarding knowledge of chronic headache disorders was 5.5 out of 8. Pharmacists with less experience had little information about Canadian prescribing guidelines compared to more experienced pharmacists [24]. Community pharmacists are generally easily available to consult. Therefore, the better knowledge of pharmacists may be attributed to their training in counseling patients for acute and chronic illnesses and providing them with advice [25].

The results of our study are also supported by another Taiwanese study that determined the pattern of medical practices by neurologists for migraine management. The study revealed that neurologists have good knowledge regarding migraine diagnosis and management; 65% of the neurologists used neuroimaging to evaluate severe headaches, whereas 44.7% used electroencephalography. Most neurologists also knew that combination analgesics could cause medication overuse headaches [26]. Better knowledge and practices of physicians regarding migraine can be attributed to their knowledge, continuously staying up to date with advances in medical sciences and compliance with the international guidelines for diagnosing and managing different diseases such as migraine [27].

In contrast with our results, a study conducted at hospitals and community pharmacies reported that the majority of the pharmacists (85%) suggested one to five OTC medicines per day for headaches to patients, and a meager (12%) suggested six or more OTC medicines. Nearly half of the pharmacists had a history of headache patients. Furthermore, most pharmacists did not follow the published migraine management guidelines [28]. Community pharmacies usually lack assessment tools for headache disorders, and the implementation of the Headache Impact Test (HIT) and Migraine Disability Assessment Questionnaire (MIDAS) may improve the situation [29, 30]. On the other hand, OTC medicines are generally inexpensive and often not prescribed by physicians; therefore, they are readily dispensed to patients [31]. Given the importance of such practices, compliance with dispensing guidelines can promote the rational dispensing of OTC medicines [12].

Another Polish study recruited 51 physicians treating an average of 12 migraine patients per month and reported that only 10% of the physicians were aware of the complete diagnostic criteria for migraine with aura, followed by 63% who were partially aware. Moreover, 55% of respondents reported that they could differentiate between chronic and episodic migraine. Furthermore, 66% prescribed triptans, and 42% prescribed metamizole, paracetamol, or NSAIDs [32]. Contrary to our results, another study that determined knowledge related to migraine management by primary healthcare providers highlighted that most of the primary healthcare providers were uncertain about the indications for brain magnetic resonance imaging (MRI), while 28% of the respondents were aware of the preventive treatment guidelines for migraine [33]. This may be because migraine complexity is a neurological disorder with particular signs and symptoms that may be confusing for healthcare providers, especially when the patient has other comorbidities. Headache is likely to be associated with stress, anxiety, and depression [34].

This study provides a comprehensive comparison of healthcare professionals regarding migraine management. In addition, this study significantly contributes to the literature, as there is a lack of local studies highlighting differences between physicians' and pharmacists' knowledge, attitudes, and practices. However, the study did not explore

the prescription patterns of migraine management, which marks the weakness of this study.

5. Conclusions

The study concluded that the physicians' and pharmacists' knowledge, attitudes, and practices were good. However, healthcare professionals' knowledge significantly differs regarding migraine-associated symptoms, preference for nonpharmacological interventions to alleviate symptoms of chronic migraine, and consideration of prevention and acute treatments as part of the broader approaches to managing chronic migraine.

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Consent to participate: All healthcare practitioners who participated in this study provided informed consent prior to data collection.

Data availability: The data supporting this study's findings are available from Noor Us Saba upon reasonable request.

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